

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-013064**Date Inspected:** 15-Apr-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1900**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Mr.Tian Lei**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girder(OBG)/TOWER**Summary of Items Observed:**

This CALTRANS OSM Quality Assurance Inspector (QA) Surendra Prabhu was present during the times noted above for observations relative to the fabrication of the Self Anchored Suspension (SAS) Superstructure being performed by Zhenhua Port Machinery Company (ZPMC) at Changxing Island, in Shanghai, China. QA observed and/or found the following:

This QA Inspector Randomly observed the following work in progress:

BAY-1- Traveler Rail (TR)

Flux Cored Arc Welding (FCAW) welding of weld joint 20TR1-037-003. Welder is identified as 216872. ZPMC Quality Control (QC) is identified as Mr. Xiang feng feng. The welding variables recorded by QC appeared to comply with the Applicable WPS: WPS-B-T-2231-TC-U5-F.

FCAW welding of weld joint 20TR2-041-011. Welder is identified as 059450. ZPMC Quality Control (QC) is identified as Mr. Xiang feng feng. The welding variables recorded by QC appeared to comply with the Applicable WPS: WPS-B-T-2231-TC-U5-F.

BAY-2-Floor Beam (FB)

Submerged Arc Welding (SAW) welding of weld joint FB3191-001-002. Welder is identified as 045270. ZPMC Quality Control (QC) is identified as Mr. Zhulin. The welding variables recorded by QC appeared to comply with

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the Applicable WPS: WPS-B-T-2221-B-U3c-S-2.

FCAW welding of Repair weld joint 20TR1-002-003. Welder is identified as 045240. ZPMC Quality Control (QC) is identified as Mr. Zhan hai feng. The welding variables recorded by QC appeared to comply with the Applicable WPS: WPS-345-FCAW-1G (1F)-Repair-1. The Repair welding was been performed against the Welding Repair Report (WRR) No: B-WR11984 Rev No: 0 and ZPMC Ultrasonic Testing (UT) Report No: B787-UT-12327.

FCAW welding of Repair weld joint 20TR1-002-005. Welder is identified as 045209. ZPMC Quality Control (QC) is identified as Mr. Zhan hai feng. The welding variables recorded by QC appeared to comply with the Applicable WPS: WPS-345-FCAW-1G (1F)-Repair-1. The Repair welding was been performed against the Welding Repair Report (WRR) No: B-WR11985 Rev No: 0 and ZPMC UT Report No: B787-UT-12327.

BAY-6-WEST JACKING FRAME (WJF)

SMAW welding of weld joint WJF-0-297. Welder is identified as 049769. ZPMC Quality Control (QC) is identified as Mr. Zhao Jian Hang. The welding variables recorded by QC appeared to comply with the Applicable WPS: WPS-B-T-3211-TC-U4c.

BAY-7-TR

FCAW welding of Repair weld joint 10TR3-003-014. Welder is identified as 048625. ZPMC Quality Control (QC) is identified as Mr. Cui jian jie. The welding variables recorded by QC appeared to comply with the Applicable WPS: WPS-345-FCAW-1G (1F)-Repair-1. The Repair welding was been performed against the Welding Repair Report (WRR) No: B-WR11920 Rev No: 0.

During Quality Assurance (QA) random in-process observations of the fabrication of Traveler Rails-10TR3-026 and 10TR1-005, this QA Inspector discovered the following issue:

- TR-10TR3-026-One pin hole and 10TR1-005-Three pin holes observed on web Base metal adjacent to the buttering performed area. Approximately 6 to 7 mm in depth.
- The Y Locations are approximately 30 mm from the edge.
- The Base metal thickness to be measured 25 mm.
- The TR designated as Non Seismic Performance Critical Member (Non-SPCM) on the approved drawing.
- ZPMC QC and American Bridge/Fluor (AB/F) will take the approval from the Caltrans Engineer to perform the base metal Repair of these locations by welding.
- The attached photographs provide additional detail.

Applicable reference:

Special Provisions Section 8-3.01: "The Engineer shall be notified immediately in writing when welding problems, deficiencies, base metal repairs, or any other type of repairs not submitted in the WQCP are discovered and also of the proposed repair procedures to correct them. For requests to perform repairs, The contractor shall include an engineering evaluation of the proposed repair."

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ZPMC Welding Quality Control Plan, Section 9.2.1.2: “Prior approval of the Engineer shall be obtained for repairs to base metal other than what was identified in Section 9.2.1.1 of this manual and the repair of all other cracks.”

AWS D1.5/2002, Section 3.7.4: “Prior approval of the Engineer shall be obtained for repairs to base metal.”

This QA notified ZPMC QC identified as Mr. Xia yong zheng and ABF QA Inspector identified as Mr.Chang of the above issue, and reported to the Team leader.

BAY-8-TR

This QA Inspector observed ZPMC welding personnel performing Buttering by FCAW process for 10TR5-001. Welder is identified as 219414. In process FCAW appears to be progressing in compliance with Caltrans Engineer Approved welding procedure i.e. WPS-345-FCAW-1G (1F)-Repair-1. The Buttering welding was been performed against the B-CWR1340 Rev No: 0 and ZPMC Quality Control (QC) is identified as Mr.Sun yan fei and Certified Welding Inspector (CWI) is identified as Mr. Guo Yan Fei.

BAY-8-Tower skirt connection angles.

During Quality Assurance random in-process observations of the fabrication of Tower Skirt angle strut plates, this Caltrans Quality Assurance (QA) Inspector discovered the following issue:

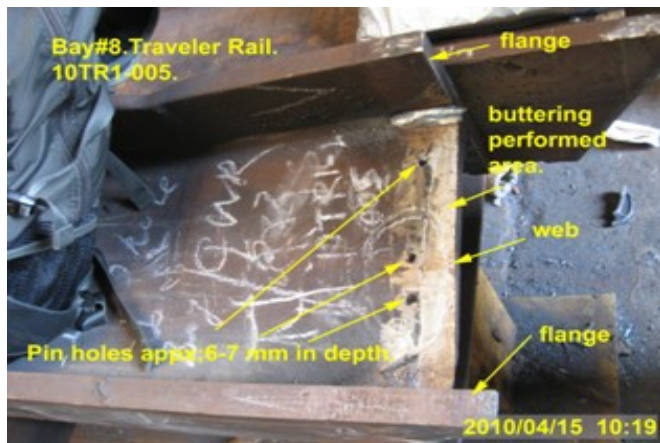
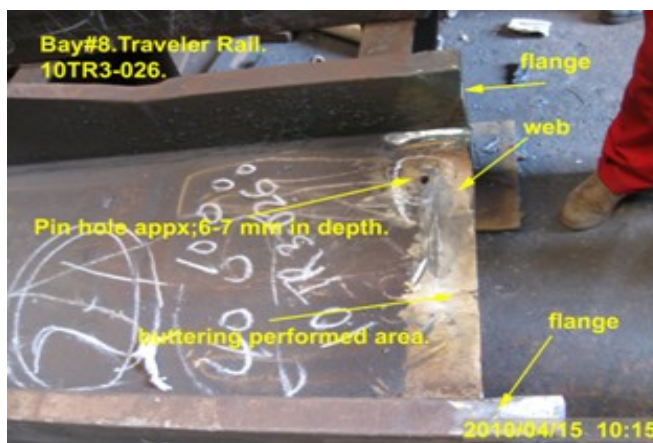
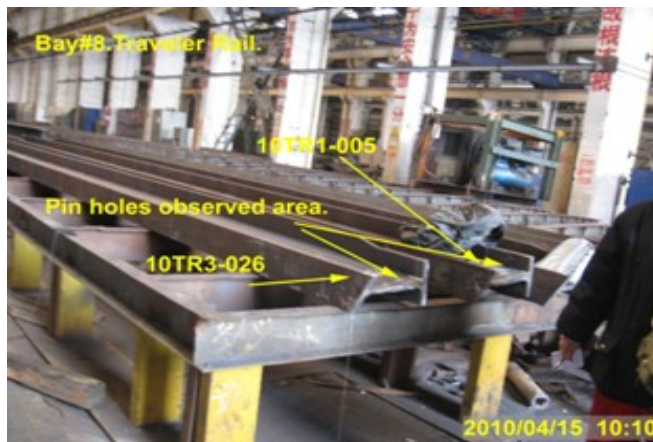
- ZPMC Personnel performing plug welded restoration of the material with mis-located drilled bolt holes without approved repair Weld Procedure Specification (WPS).
- ZPMC Certified Welding Inspector (CWI) / Quality Control Inspector (QC) were not observed as being present during the welding process from 10:00 to 11:00 hours.
- The welding was being performed by using Flux Cored Arc Welding (FCAW) process.
- The members are identified as a Tower skirt connection angles.
- Total number of skirt angle strut plates repaired: 22 No's.
- These members are located in the Bay #8.

This QA generated an incident report on this date for the above issue, for further details see the incident report.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

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Summary of Conversations:

Only general conversation was held between QA and Quality Control (QC) concerning this project.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang 15000422372, who represents the Office of Structural Materials for your project.

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Inspected By: Prabhu,Surendra

Quality Assurance Inspector

Reviewed By: Miller,Mark

QA Reviewer